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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/577,387

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EXAMINER

MELLON, DAVID C

ART UNIT

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1797

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/577,387	Applicant(s) WATARI ET AL.	
	Examiner DAVID C. MELLON	Art Unit 1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) 16-19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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4. Claims 1-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sueyoshi et al. (WO 2004/028672) which is an intervening reference, see English language equivalent USP 7,294,267 and in view of Watari et al. (US 2002/0148775).

Regarding claim 1, Sueyoshi et al. discloses in figures 1-2, a hollow fiber membrane module (Abstract) comprising:

- A sheet form hollow fiber membrane (1)
- An anchoring member (2) wherein:
 - An end of a side of a hollow fiber membrane opening of the sheet form hollow fiber membrane is fastened by the anchoring member (2) so that the sheets are substantially parallel leaving the end open (see figure 2)
 - A first side and an opposing second side of the anchoring member (3 and 4)
 - Wherein the first side is substantially rectangular (3 - parallelepiped)
 - Wherein the second side is substantially circular with the membrane ends opening into it (4).

Sueyoshi et al. fails to explicitly disclose a non-porous structure of the membrane with a 3 layer composite hollow fiber membrane.

Watari et al. discloses a gas-permeable hollow fiber membrane (abstract) which has a three-layer structure with a central non-porous layer with porous layers disposed on either side ([0009]).

Sueyoshi et al. and Watari et al. are combinable because they are concerned with the same field of endeavor, namely that of hollow fiber membrane systems.

It would have been obvious to one of ordinary skill in the art at the time of the invention to replace the hollow fiber membrane of Sueyoshi et al. with a sheet formed membrane of the three layer construction with a non-porous layer as taught by Watari et al. for the purpose of enabling improved gas separation and allowing the membrane unit to be useable for degassing inks ([0007] of Watari).

Regarding claim 2, Sueyoshi et al. further discloses the parallelepiped structural feature (C6/L55-67).

Regarding claim 3, Sueyoshi et al. discloses the claimed relationship (C7/L10-15).

Regarding claim 4, Sueyoshi et al. discloses the claimed feature (C7/L27-35).

Regarding claim 5, Sueyoshi et al. discloses the claimed feature (C7/L36-43).

Regarding claim 6, Sueyoshi et al. discloses the claimed relationship (C7/L44-51).

Regarding claim 7, Sueyoshi et al. discloses the claimed feature (C8/L5-13).

Regarding claims 8-12 and 14-15, modified Sueyoshi et al. discloses all of the claim limitations as set forth above.

Watari et al. further discloses the three layer membrane has porous layers sandwiching a non-porous layer ([0009]) wherein the non-porous layer is gas permeable ([0026]) and the porous layers are made of polyolefins ([0023]). Watari et al. further discloses porous layer thickness of 5-100micrometers and non-porous layer thickness

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of 0.3-2micrometers ([0009]) with an inner membrane diameter of 50-500 micrometers with a membrane thickness of 10-150 micrometers resulting in a ratio of the two of more than 0.1 ([0010]).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the membrane system of Sueyoshi et al. such that it includes all the features of the three layer composite membrane of Watari et al. for the purpose of decreasing the cost of the system by reducing the mechanical strength needed in the system (Watari et al, [0004]).

Regarding the gas permeability of the non-porous layer, Watari et al. discloses the use of high gas permeability membrane materials ([0026]) but is silent as to the specific gas permeability range of the non-porous layer.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the non-porous layer to have a gas permeability in the claimed range for the purpose of improving ink degassing. Furthermore, applicant has not established the criticality of the gas permeability amount and the instant application uses the same materials as the prior art. Furthermore, it has been held that where the general conditions of a claim are disclosed in the prior art (e.g. the high permeability material), discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

Regarding claim 13, modified Sueyoshi et al. as modified by Watari et al. further discloses an outer diameter of 100 to 3000 micrometers (two porous layers of 100 micrometers combined with a 3 micrometer non porous layer and 50-500 micrometer

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inner diameter results in a total membrane diameter in the order of 100-3000 micrometers).

Response to Arguments

5. Applicant's arguments with respect to claims 1-15 in view of Yamamori et al. have been considered but are moot in view of the new ground(s) of rejection.

With regards to the Yamamori et al. reference, it is noted by the Examiner that the reference fails to set forth "a first end face being substantially rectangular on said first side". In fact, Yamamori et al. merely represents that the aperture opening into the anchoring member be rectangular shaped, not that the physical anchor member itself be rectangular shaped. Clearly, in the representative figure 2, it is not rectangular shaped. Additionally, the embodiment of Yamamori et al. in figure 6 fails to read on the claimed invention due to the fact that circular member 9 is not capable of reading on the language "a second end face being substantially circular, that is on said second side of the anchoring member", the second side being "an opposing second side" wherein "open ends of the hollow fiber membranes open at said second end face".

In view of the above discussion and Applicant's remarks, the rejection in view of Yamamori et al. has been withdrawn.

Double Patenting

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140

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F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-3 and 6 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1, 4-6 and 13-14 of U.S. Patent No. 7,491,329. Although the conflicting claims are not identical, they are not patentably distinct from each other because it is a well known construction to add a non-porous layer to a hollow fiber membrane. See for example Watari et al. (US 2002/0148775).

Conclusion

8. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to DAVID C. MELLON whose telephone number is (571)270-7074. The examiner can normally be reached on Monday through Thursday 9:00am-5:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vickie Kim can be reached on (571) 272-0579. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Tony G Soohoo/
Primary Examiner, Art Unit 1797

/D. C. M./
Examiner, Art Unit 1797